

Part II

Chapter 2

Strategic planning of the Federal Public Debt

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1 Introduction

It is essential to adopt a sound strategy to manage public debt as a way to ensure, or at the least not affect, macroeconomic stability. This need became especially clear following events that shattered emerging markets in the late 1990s. To achieve this aim, strategies must be designed that take into account, *inter alia*, the optimal profile of debt in the long run, as well as the risks and commitment to developing the debt market.

Brazil is a good example of a country that promoted many changes in the process of designing strategies, after policymakers and professionals in the debt office studied international best practices and agreed that strategic planning was needed to achieve greater equilibrium between costs and risks over time.

Changes focused on institutional structures and governance mechanisms, and, at the beginning of the decade, a new framework was designed to better distribute the functions of the department that manages public debt. This has improved technical capacity and ensured greater integration in the analysis of domestic and external debt.

The new governance mechanisms required that analytical strategic planning and risk management tools be developed and introduced into the decision making process. These were reinforced by the Debt Management Committee (which meets monthly¹) and by Annual Borrowing Plan (ABP) publications and the Annual Debt Report.² Thus, when the ABP was launched in 2001, it expanded the scope of debt management and developed long-term financing strategies. Since then, it has gained importance in the financial community and is currently the main channel for conveying debt management goals, as well as one-year targets for the main debt profile indicators. Its preparation is coordinated by the middle office, but also involves the back and front offices.

This chapter discusses the main aspects in Brazil's public debt strategic planning process. Section 2 briefly describes the economic history and changes in the institutional framework of the National Treasury that influenced the design of debt strategies. Section 3 discusses the basic elements of planning, especially as they relate to debt management objectives. Section 4 addresses the issue of optimal debt structure in the long term (benchmark), the step that precedes the development of short term financing strategies. Section 5 explores the stages in the design of a transition strategy from the short to the long term. Section 6 offers some conclusions.

¹ The Committee, as well as the entire strategic planning process, includes representatives of the three public debt management coordinating units (*back-, front- and middle-offices*), in addition to the undersecretary responsible for the public debt and the National Treasury secretary.

² The *Annual Borrowing Plan* and *Annual Debt Report* are published in Portuguese and English at the beginning of each year and are available on the National Treasury website at www.stn.fazenda.gov.br.

Box 1. Annual Borrowing Plan – objectives and guidelines

Since 2001, the National Treasury has presented its Annual Borrowing Plan (ABP) which is based on the goals and guidelines for Federal Public Debt (FPD) management, especially with regard to greater transparency and predictability.

The objective of FPD management is “to minimize long-term borrowing costs, with maintenance of prudent risk levels; at the same time, it seeks to contribute to the smooth operation of the public bond market”.

Thus, the ABP for 2009 sought to:

- Lengthen average maturities and reduce the percentage of FPD maturing in 12 months;
- Gradually substitute floating rate securities by fixed-rate or inflation-linked securities;
- Improve the External Federal Public Debt - EFPD profile through issuances of benchmark securities, the anticipated buyback program and structured operations;
- Provide incentives to develop the yield curve for Federal public securities on the domestic and external markets;
- Expand the investor base.

Source: Annual Borrowing Plan, 2009

2 Macroeconomic background and institutional arrangement

The introduction of the Real Plan in 1994 created the context for macroeconomic stability that was later reinforced by improvements in other areas. Also, the conditions for adopting best debt management practices were established in a way that allowed managers and investors to design medium- and long-term strategies using more realistic scenarios.

Further, as a result of the growing confidence in inflation controls, the country was able to gradually de-index its debt and develop strategies to change its composition and maturity profile. These actions were crucial since earlier, a high percentage of domestic debt was attached to floating interest rates: For example, in July 1995, 79.1% of domestic debt was linked to overnight interest rates, while fixed-rate debt accounted for just 8.5% of the total, with maturities of up to two months.

The National Treasury gradually sought to replace floating-rate for fixed-rate debt and also lengthen its average maturity. A decade later, public debt management had gained more flexibility due to the consolidation of economic stability; this allowed for broader choice when defining public financing strategies and changing the composition and maturity profile of the debt. Thus, by December 2008, 32.4% of FPD was linked to floating rates while 29.9% was the fixed-rate share. Also, another 26.6% was inflation-linked, an index that is positively correlated to government revenues and therefore desirable from the standpoint of public debt risk.

As we stated before, the changes in Brazil's public debt profile took place in the context of changes in the institutional structures and governance mechanisms of the National Treasury, which involved building capacity in strategic planning and risk management as sound practices to define debt management policies. Indeed, one main lesson from the past refers to the fundamental role of creating a financing strategy according to clearly defined debt management objectives and implemented within an efficient institutional and decision-making (governance) framework.

The new institutional arrangements helped establish an organizational culture less focused on short-term objectives and more on strategic planning and risk management in daily activities. As discussed in Chapter

1, Part II, an important element in the institutional arrangement is that the National Treasury adopted a function-based organization for debt management, with back-,³ front-⁴ and middle-offices.⁵ Another element is the integration of domestic and external debt analyses in the same institution⁶, which promotes efficiency, physically placing those with similar skills in the same area.

One result of integrating domestic and external debt in the National Treasury and creating a function-based organization for debt management was the need to improve the communications among the different units which are inter-dependent.

To improve communications and avoid inconsistencies, the Debt Management Committee holds monthly meetings - a tradition at the National Treasury - usually in the last week of the month. These offer an opportunity to consolidate views and information on past performance, present actions and future perspectives. The group analyzes the probability of achieving the ABP's goals and, if necessary, designs corrective strategies. Also, it defines the strategy for the next month, including aspects such as maturity and type of indexation (fixed, floating, FX-rate or inflation), after it analyzes market conditions. Further, it sets a schedule for public security auctions.

3 Building a debt strategy: the Brazilian experience

The first step before designing the strategy is to define the global debt management objective, which is complex. Some questions must first be answered. These include:

- Should a country minimize the costs of financing its debt?
- What are the trade-offs between costs and risks?
- What weight should be given to the role of government in developing the domestic debt market?
- How should the balance between domestic and external financing be achieved?

Clearly, there are no single correct answers to these questions, and this chapter does not explore the range of answers, as they are unique to each country. However, once they are answered and the main objectives defined, another challenge emerges: How should the objectives be translated into strategies? This question will be explored in the rest of this chapter.

For many countries, including Brazil, the main objective is to minimize long-term costs (rather than costs, in general) and maintain prudent risk levels.⁷ The former translates into choosing policies that will be more efficient in the medium and long term and reducing the myopic behavior that short-term strategies can promote. With regard to the latter, risk management has become increasingly sophisticated and an important element in debt management. It is particularly challenging and, possibly, more important in emerging

³ The back office is responsible for statistics, recording, control, payment and monitoring activities related to domestic and external debt budgets.

⁴ The front office is responsible for developing short-term strategies related to issuing securities in the domestic and external markets as well as for auctions in those two markets.

⁵ The middle office is responsible for developing medium- and long-term strategies, for research and development and risk management, and for monitoring macroeconomic relations with domestic and foreign investors.

⁶ Before the integration, the Central Bank issued external securities; by January 2005 this task was transferred to the National Treasury.

⁷ See *Guidelines for public debt management*, published in 2001 by the World Bank and the International Monetary Fund, for the precise definition of debt management objectives in different countries

economies, which are usually more vulnerable to sudden changes in the macroeconomic environment and often do not have fully developed and liquid debt markets.

For the debt manager, who is concerned with meeting the objective, a useful way to address this question is to think about it as a minimization issue, where the objective function is the long-term cost and the constraints are the prudent risk levels. This is the approach used in many countries such as Portugal and Denmark (see the next box), and helps establish the scope of action for developing debt strategies.

A common practice is to divide the process into two stages: (a) the search for a benchmark, which considers long-term issues like the optimal composition of the debt in terms of types of instruments, maturities and currencies; and (b) the development of a transition strategy based on the objectives set by the benchmark, with regard to initial conditions (i.e., current debt composition and its maturity profile) and that seeks to address the issue of how quickly the new composition should be obtained. This stage includes developing short- and long-term strategies, managing risks and monitoring their implementation. These two stages will be described next.

Box 2. Objectives of debt management in selected countries	
South Africa	<p>The Liability Management subprogram, which is part of the National Treasury Strategic Plan, seeks to meet the following <i>outputs</i>:</p> <ul style="list-style-type: none"> a) Finance government’s gross borrowing requirement; b) Sound domestic and foreign debt management policies; c) Reduce debt service costs; d) Contribute to the development of financial markets; e) Sound investor relations. <p>Source: <i>The 2008/11 National Treasury Strategic Plan</i>.</p>
Denmark	<ul style="list-style-type: none"> a) The overall objective of the government debt policy is to cover the central government’s financing requirement at the lowest possible long-term borrowing costs, while taking the degree of risk into account; b) Furthermore, the aim is to facilitate the central government’s access to the financial markets in the longer term and to support a well-functioning domestic financial market. <p>Source: <i>Danish Government Borrowing and Debt, 2007</i>.</p>
Finland	<p>The objective of Finland’s central government debt management is to fulfill the state’s financial requirements and to keep the long-term costs of servicing the debt as low as possible in relation to risks resulting from the debt in such a way that the risks are acceptable in terms of national risk-bearing capacity.</p> <p>Source: <i>Debt Management Annual Review, 2007</i>.</p>
Ireland	<p>The Agency’s primary objectives are, first, to protect liquidity in order to ensure that the Exchequer’s current and future funding needs can be financed prudently and cost effectively and, secondly, to ensure debt service costs are kept to a minimum subject to containing risk within acceptable limits. In addition to achieving these objectives, the Agency’s performance is measured by reference to an externally approved and audited benchmark portfolio (the “Benchmark”).</p> <p>Sources: <i>Report and accounts for the year ended, 31 December 2006</i>; Benchmark and strategy, available at http://www.ntma.ie/NationalDebt/benchmarkStrategy.php</p>

Italy	<p>Reducing borrowing costs and limiting the exposure to financial risks. Debt management seeks to reduce medium- and long-term exposure to the risk of interest rates (nominal and real) and refinancing, as well as to maintain expenditures on interest as a GDP proportion under control.</p> <p>Source: <i>Guidelines for Public Debt Management</i>, 2008</p>
Mexico	<p>The central objective of the public debt policy is “to satisfy the financing needs of the federal government at the lowest possible cost, subject to a level of risk compatible with a healthy evolution of public finances and the development of local financial markets”;</p> <p>Guidelines:</p> <ul style="list-style-type: none"> a) To finance the federal government deficit entirely in the local debt market, favoring the issuance of long-term nominal fixed rate bonds; b) To reach a net external public sector debt reduction target and improve the cost and term structure of foreign liabilities. <p>Source: <i>Plano Anual de Financiamento</i>, 2008</p>
Portugal	<p>The objective of debt management is “to guarantee the financial resources required for the execution of the State budget and be conducted in such a way as to:</p> <ul style="list-style-type: none"> a) Minimize the direct and indirect costs of public debt on a long-term perspective; b) Guarantee a balanced distribution of debt costs through several annual budgets; c) Prevent an excessive temporal concentration of redemptions; d) Avoid excessive risks; e) Promote an efficient and balanced functioning of financial markets.” <p>Source: (Public) Debt Framework Law (law no. 7/98 of February 3, 1998)</p>

Note: See Currie, Dethier and Togo (2003, p. 32) for other groups of selected countries.

4 In search of a benchmark

Several countries have already used benchmark models for this purpose, among which are Portugal, Sweden, Ireland, Denmark and South Africa.⁸ Further, international organizations like the World Bank and IMF recommend that sovereign debt managers adopt benchmark models as a risk management and strategic planning tool.⁹

In summary, the benchmark represents an optimal long-term debt structure that guides the decision-maker in defining the financing strategy. In a steady-state situation, it indicates a single optimal profile for the public debt or a possible set of profiles that are efficient from the standpoint of the trade-off between the expected cost and risk. In this approach, determining the benchmark requires selecting the maximum risk or cost level the government should bear and then the corresponding debt profile. It is precisely at this point that senior managers play a crucial role, in the same way that well structured governance procedures become important in determining the main guidelines for conducting the debt process. These include the types of instruments to be issued, their maturity structure and the debt global maturity profile (including limits on the amount of debt falling due in the short term).

⁸ See Cabral (2005) for a more complete description of the international experience with benchmark models for public debt.

⁹ The analytical aspects of the Brazilian model are further explored in Chapter 3, Part 2.

Box 3. International experience: the Portuguese benchmark model

Portugal was one of the first countries to develop a benchmark to quantify the long-term objective of public debt management, in terms of a long-term portfolio for public liabilities. This type of benchmark would increase consistency between daily debt management decisions and long-term objectives.

The set of instruments used to define the benchmark was presented in the 1999 Public Debt Management Annual Report, released by the Treasury Management and Public Credit Institute (IGCP) of Portugal. The IGCP determines a steady-state benchmark, which is approved by the Minister of Finance.

The Portuguese model is a combination of simulation and optimization, where decision variables as well as cost and risk measures are defined in terms of cash flow of liabilities (government assets are not incorporated), based on the assumption that oscillations in financial variables cause budget volatility and therefore can reduce the degrees of freedom of the fiscal policymaker. Finally, there are explicit constraints to the refinancing risk (limits to the temporal concentration of debt maturity).

The model is simulated in steady-state under the hypothesis of constant debt in nominal terms and has basically three inputs: (a) stochastic simulation of interest rates; (b) different financing strategies that meet predefined rollover and management constraints; and (c) deterministic scenarios for other macroeconomic variables. Next, a computer mechanism simulates the dynamics of the debt portfolio and generates a set with several efficient portfolios from the standpoint of the trade-off between cost and risk.

A restricted set of best model solutions, considering efficiency and robustness to changes to model hypotheses, is submitted to the authorities for final choice. As a result, the decision-maker (the minister) determines the acceptable trade-off between cost and risk by defining the efficient strategy most suitable for the long term, i.e., the benchmark. The final decision also takes into account market constraints, since the strategy chosen should be feasible for a sovereign issuer.

Source: 1999 *Public Debt Management Annual Report*.
Portugal – Public Debt Management

The information generated by the model helps debt managers conduct their financing operations - both new issuances and those associated exclusively with risk management - so that the debt is gradually developed towards an optimal composition from the standpoint of solving the cost minimization problem conditioned to prudent risk levels.

According to best international practices, the technical team typically develops the studies regarding the benchmark and submits the results, in terms of efficient debt compositions, to the fiscal and debt policymaker (the Minister of Finance, the Treasury Secretariat or an Executive Committee), responsible for choosing the acceptable risk level. At this moment, other issues which may influence the final choice, such as those linked to debt sustainability, must also be considered when defining a maximum acceptable risk or cost level.

Sometimes, discrepancies can be seen between the optimal and current composition of the debt. Often, these are related to an adverse or repeatedly volatile macroeconomic environment, undeveloped debt markets, and demand for the types of instruments debt managers consider optimal, in its early stages. Under these conditions, robust theoretical analyses, simulations of debt dynamics, and probing discussions to define long-term objectives are even more important and needed than identifying an exact benchmark in which the optimal debt profile is defined in detail.¹⁰

¹⁰ It is important to recognize that any model to simulate debt dynamics and define a benchmark is a simplified representation of reality and, therefore, has several limitations. As highlighted by Bolder (2008), although the model adds benefits to decision-making, it cannot replace the debt manager's knowledge and discretion.

Box 4. International experience: the South African benchmark model

The National Treasury of South Africa, which is responsible for managing the country's debt, has also advanced in developing a methodology to define a benchmark for its debt portfolio. The model was first developed in 2000 and proposed a benchmark based on a target for the modified duration of the portfolio. The proposal was based on the expected behavior, in terms of cost and risk, of a limited number of strategies for the debt portfolio evaluated under different macroeconomic scenarios.

The model was reviewed in 2006 and a new proposal was based on a Cost-at-Risk methodology, which sought to measure the cost (in absolute terms) of deviations from the expected budget cost of the debt service. Estimates were based on a model of econometric simulations, using current and historical data on yield curves, exchange rates, GDP, inflation and borrowing requirements. A stochastic frontier expressing the trade-off between cost and risk, and where the desired debt profile was developed based on the analysis of more than 20,000 different portfolios' track record for over 30 years.

The model proposed not only a long-term benchmark for the debt portfolio in terms of modified duration but also an optimal debt profile (fixed as opposed to floating rates, domestic as opposed to external) and, then calculated the duration of the desired portfolio.

Source: National Treasury: Republic of South Africa

This fact should not weaken the relevance of careful benchmark studies. The concern here is that the time needed to develop an appropriate methodology can vary in each country and that all models represent an effort to simplify reality. Neglecting this fact could lead to postponing important policies based on solid theoretical benchmarks and the managers' expertise, in order to wait for a model to be completed. Thus, a proper balance between the use of sophisticated tools and the practical debate connected to creating policies generally produces the best combination for designing debt strategies.

Recently, the National Treasury developed an optimal long-term debt composition model (benchmark) for Brazil's public debt. This model takes as a theoretical reference the idea of tax smoothing, thus applying a framework that seek to minimize the impacts of shocks on public debt and the government's fiscal balance. However, even before the development of the model, the design of strategies already counted on several tools to evaluate them in their multiple aspects of costs and risks.

To quantify trade-offs between expected costs and risks, the National Treasury uses the concept of simple market risk (e.g. the share of fixed-rate debt versus the share of floating-rate debt) and refinancing risk (e.g. the percentage due in 12 months and debt average maturity) indicators. Also, it maps assets and liabilities to identify the main mismatches according to the most important market risk factors and maturity structure - Assets and Liability Management (ALM). Further, the risks are assessed using stochastic indicators such as the Cost-at-Risk (CaR) and Cash-Flow-at-Risk (CFaR), analyses of debt sensitivity to changes in macroeconomic variables and market stress tests.¹¹

Regardless of more specific formulations for defining the benchmark, these latest studies and traditional indicators help to identify the main financing guidelines, e.g. (a) to avoid issuing FX-rate linked debt; (b) to reduce the weight of floating interest-rate securities; and (c) to increase the share of fixed-rate and inflation-linked securities.

¹¹ In this regard see Baghdassarian (2004) and Bonomo et al. (2003).

Although traditional financial analysis instruments, such as with Brazil's benchmark model¹², is an useful tool to investigate the trade-off between expected costs and risks, the choice of an optimal composition must consider other aspects of the debt management which are not explicitly inserted in the model. For instance, the government may have other objectives than just reducing costs by maintaining prudent risk levels, e.g. "contributing to the well functioning of the public bond market", as in the case of Brazil. Further, the size and nature of public security issuances and the debt profile may cause the government to strongly influence prices, so limiting the ability of government to quickly achieve the optimal debt composition. Moreover, indicators related to cash flows and impacts on the annual budget, for example, also affect the choice of the optimal debt structure.

5 Design of the public debt strategy

The strategic planning of public debt has many dimensions and it is important to ensure that the main aspects are covered. This chapter has already explained the importance in Brazil of building institutional and governance capacity, as well as the need to identify benchmarks and traditional risk indicators.

This section offers a systematic overview of how Brazil develops its debt management strategy, from the point at which the objectives are defined to implementing and monitoring the process. Some aspects related to modeling techniques will be omitted in order to focus on the broader issues.

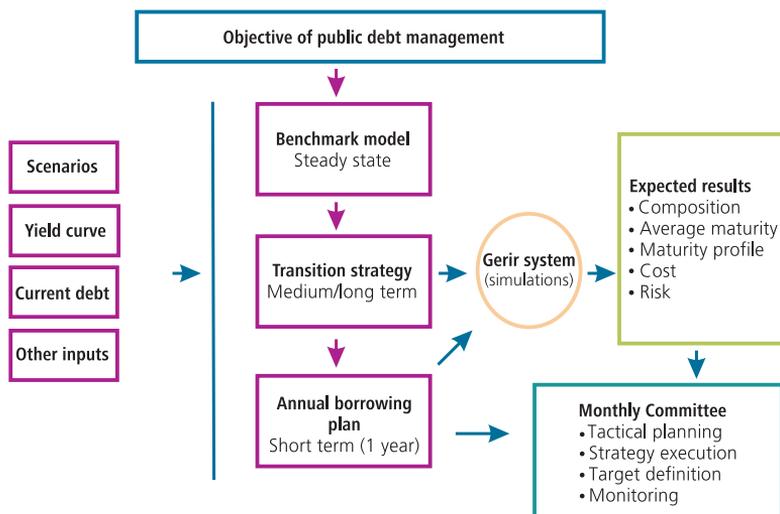
The debt management strategy consists of a short-term plan (up to a year) and a medium/long term *transition* strategy (over a year); it is closely related to the long-term benchmark (steady state) and the objectives and guidelines defined. The strategic planning process involves seven steps:

- a) Defining long term objectives;
- b) Developing macroeconomic scenarios;
- c) Holding preliminary discussions on scenarios and constraints;
- d) Designing the short-term strategy (up to one year);
- e) Setting targets (the expected results);
- f) Designing the transition strategy (medium and long-term);
- g) Tactical planning of the debt, execution and monitoring.

Figure 1 shows the public debt management process in Brazil from a broad perspective. Once the management objective is defined, the modeling, discussion and definition of long-term objectives (benchmark) are reviewed. Next, the design of the transition strategy is explored, which involves mapping risk factors and opportunities for and constraints on achieving the optimal FPD profile. These elements are crucial to the next stage, when the short-term strategy is defined and subsequently expressed in the ABP and reflected in the tactical decisions of the Debt Monthly Committee.

¹² This model is based on stochastic finance and efficient portfolio theory.

Figure 1. Simplified scheme of FPD strategic planning



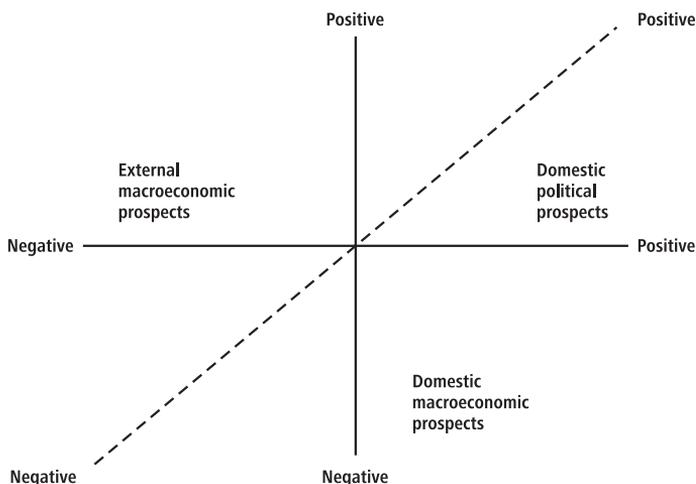
Step 1. Defining long-term objectives

This first stage in the strategic planning process has already been addressed in some detail and includes defining the optimal debt management (based on well-defined objectives and constraints), developing a methodology and the exercise to establish an optimal debt structure (or a set of profiles), and defining a benchmark (steady state).

Step 2. Developing macroeconomic scenarios

Discussions at this stage include defining the methodology to be applied under different scenarios and identifying the most relevant risk factors (e.g. the Brazilian and global economy, political environment, etc.). Next, deterministic scenarios are developed based on various hypotheses that consider the identified risk factors, domestic and external macroeconomic prospects, and domestic political prospects that could influence FPD management.

Figure 2. Simplified development scenario



Although projections by private market analysts exist, they mainly serve as references for baseline scenarios. Thus, a technical team with strong macroeconomics currently plays an important role creating alternative scenarios (usually not shared with the public) that differ from those anticipated by the baseline. Debt managers need to develop this expertise.

For the National Treasury, at least four scenarios are devised—optimistic, conservative, neutral (the baseline case) and stress. The latter, where conditions are more difficult, is useful for designing contingent strategies and assessing the vulnerability of debt to major macroeconomic shocks.

Step 3. Discussions on scenarios and constraints

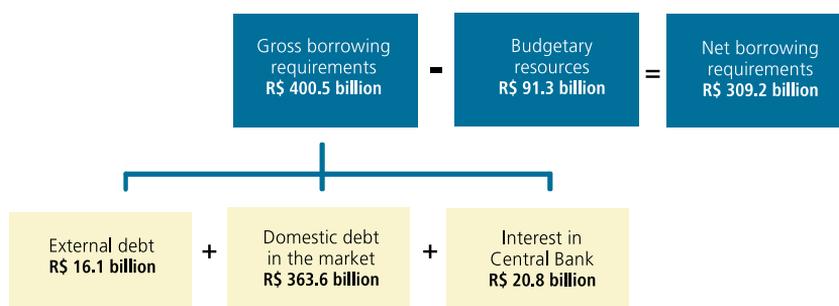
The alternate scenarios—developed by a team whose members have backgrounds in macroeconomics—generate probing discussions in the National Treasury, with all units (front-, middle- and back-offices) involved. They are then combined with public debt guidelines and constraints related to budget, demand, risk and contingent liabilities. The main issue is how quickly long-term objectives can be reached, taking into account the constraints; the quality of the answer depends on the extent to which the discussions are coordinated and the expertise involved in producing strategies.

Step 4. Designing the short-term (up to one year) strategy

This stage, when most of the quantitative work is performed is the most important in the strategic planning process. Although not crucial, the availability of some type of technological tool can make the analysis more precise; in Brazil, the *GERIR system* is applied.¹³

The next step involves reviewing the borrowing requirements for the planning period. With regard to the Annual Borrowing Plan (ABP), these include: (a) redemptions projected for the year for both domestic and external commitments, and (b) budget resources earmarked for public debt payments, as listed in the 2009 ABP (see Figure 3).

Figure 3. Projected National Treasury borrowing requirements in 2009



Source: 2009 ABP

For the short term, the strategy should detail all securities to be issued to finance the public debt. In this regard, an initial exercise includes presenting several alternative financing strategies that contain possible actions for public debt management as well as constraints and trade-offs. The strategies explore different

¹³ See Box on *Gerir* in Part II, Chapter 1.

financing rationales, some that emphasize reducing risk and others that reduce costs, taking into account the borrowing requirements and public debt management guidelines.

After several simulations that combine scenarios and strategies, results are consolidated and submitted to debate within the debt office as well as with decision-making authorities. Table 1 provides a summary (with hypothetical data) that compares projections of the main FPD indicators resulting from three alternative strategies to define the indicative limits of the ABP.

Table 1. ABP strategy comparisons and targets

Statistics	Observed		2009 ABP strategies – Dec-09			2009 ABP limits	
	Dec-07	Dec-08	Basic	Optimistic	Conservative	Lower	Upper
Outstanding FPD (R\$ billion)	1,333.8	1,397.3	1,525.0	1,598.0	1,456.0	1,450	1,600
Composition of FPD (%)							
Fixed rate	35.1%	29.9%	27.5%	31.0%	24.5%	24%	31%
Inflation	24.1%	26.6%	29.0%	27.0%	26.5%	26% ⁴	30%
Floating rate	30.7%	32.4%	34.5% ⁰	32.5%	37.5%	25%	30%
FX-rate	8.2%	9.7%	8.0%	7.5%	10.5%	7%	11%
Others	1.9%	1.4%	1.0%	1.0%	1.0%	1%	2%
Concentration of FPD							
Average maturity (years)	3.3	3.5	3.5	3.7	3.4	3.4	3.7
% due in 12 months	28.2%	25.4%	27.0%	29.0%	25.5%	25%	29%

Source: 2009 ABP and 2009 ABP strategy columns – December 2009 (using hypothetical data)

A risk assessment associated with each strategy is also performed, based on the simulations. The main risks include (a) market risks,¹⁴ assessed mainly by the FPD profile, since each type of National Treasury security reacts to particular variations in indexing factors, and (b) refinancing risks,¹⁵ expressed in terms of concentration of short-term maturities, average maturity of outstanding debt and cash flow variations (see Graph 1).¹⁶

Finally, it is important to note the close relation between this and the first step, where debt management goals are defined. Although many strategies are developed, they must all be consistent with the long-term objective and desired optimal structure. In practice, the main difference between the alternate plans involves the speed at which the current debt structure converges to that of the optimal structure. These time frames must take into account market financing conditions presented by the scenarios analyzed to avoid pressures on the debt market when a strategy is implemented and excessive costs during the transition to the long-term.

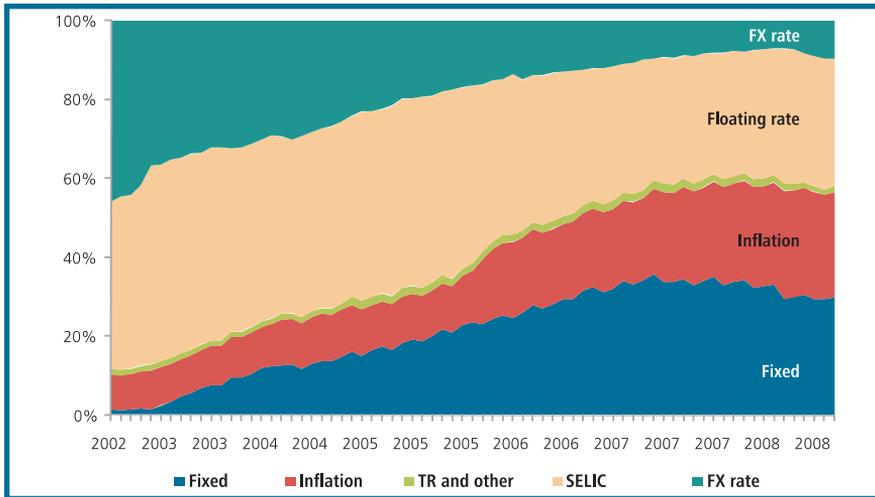
¹⁴ The market risk is associated with variations in the costs of financing public securities due to changes in short-term interest rates, exchange rates, inflation, and the term structure of interest rates.

¹⁵ The refinancing risk is associated with the possibility that the Treasury will have high refinancing costs or ultimately be unable to raise the funds required.

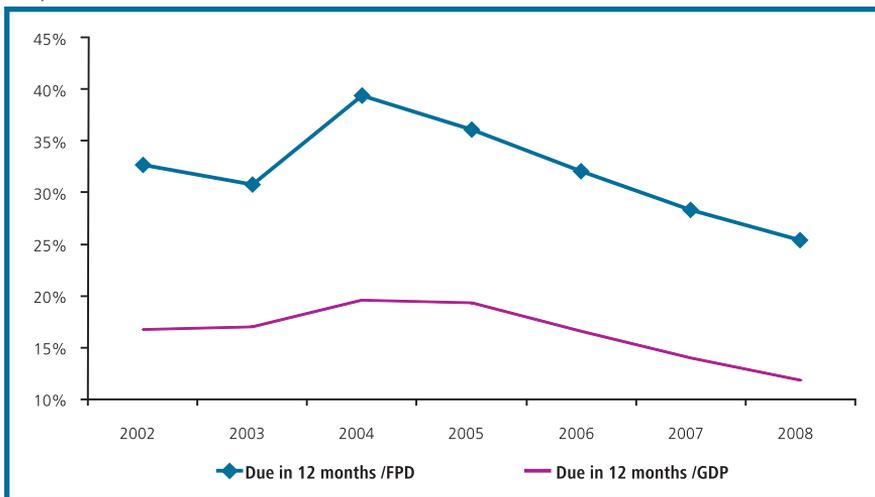
¹⁶ A discussion of monitored risks and tools used by the Treasury will be presented in Part II, Chapter 3.

Graph 1. Risk assessment: evolution in the Federal Public Debt profile

FPD Composition



Proportion of short-term maturities



Source: Economic Research Institute Foundation (Fipe)

Step 5. Expected results

At this stage, governance procedures are key, since discussions move to a higher level; in Brazil, these discussions include, among others, the Treasury Secretary and Finance Minister. The process involves a convergence with step 4, and is complete when one-year targets for indebtedness are defined. These targets are published in the Annual Borrowing Plan (ABP) as indicative limits for the debt profile (see Table 2) and, over the year, become the main references for monitoring debt managers' performance.

Step 6. The transition strategy (medium and long term)

Together with the ABP, which addresses the short-term (one year) strategy, and the definition of the optimal long-term profile (benchmark), the strategic planning of FPD involves the process of developing a transition strategy to establish links between the short and long term.

Table 2. 2009 ABP: results of Federal Public Debt (FPD)

Indicators	2008	Limit for 2009	
		Minimum	Maximum
Outstanding (R\$ billion)	1,397.3	1,450.0	1,600.0
Composition (%)			
Fixed rate	29.9%	24.0%	31.0%
Inflation	26.6%	26.0%	30.0%
Floating rates	32.4%	32.0%	38.0%
FX-rate	9.7%	7.0%	11.0%
Others	1.4%	1.0%	2.0%
Maturity profile			
Average maturity (years)	3.5	3.4	3.7
Due in 12 months	25.4%	25.0%	29.0%

Source: 2009 ABP

In addition to reviewing financing alternatives available to the National Treasury for the medium and long term, this process seeks to devise a convergence trajectory and determine the optimal speed for changing the current debt profile to what is desired in the future - with regard to initial conditions (i.e. the current debt composition and its maturity profile) and short- and medium-term constraints.

The design of the transition strategy is preceded by a phase of developing macroeconomic scenarios, which involves debates about their qualitative and, subsequently, quantitative aspects with respect to the main variables that affect the strategy as well as for FPD costs and risks.

Based on these scenarios, borrowing requirements for the planning horizon are explored that analyze the current FPD profile and quantify alternative financing strategies. Once these are developed, different strategies for each are examined, with variations in their convergence speeds towards the long-term benchmark. Results for relevant FPD costs, risks, composition and maturity profile indicators are simulated.

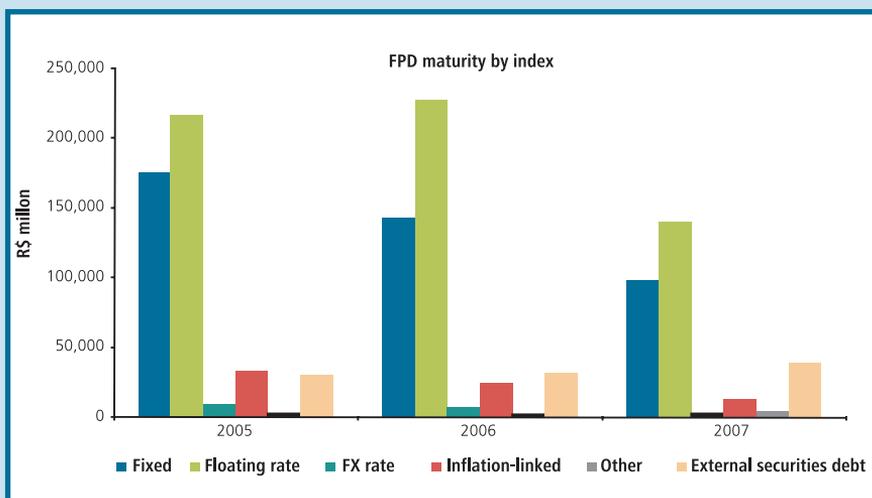
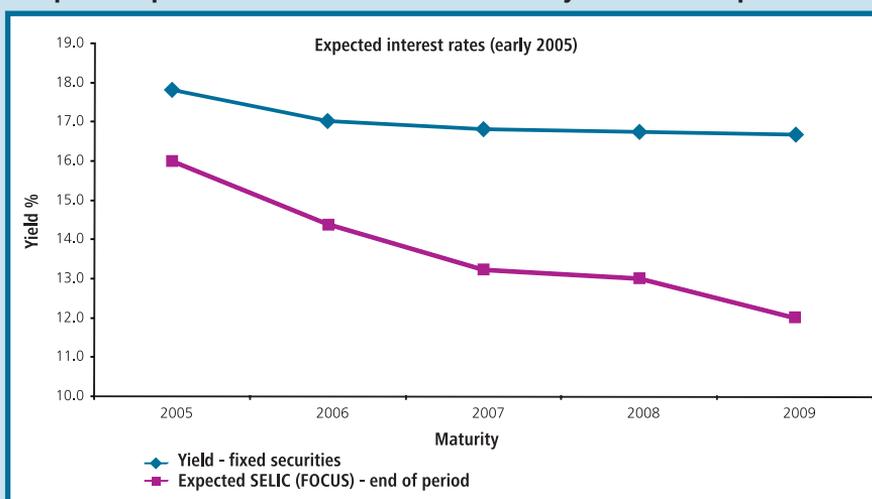
The medium- and long-term strategies should explore various actions and reflect the constraints and trade-offs in FPD management; e.g. one can include a larger proportion of fixed-rate securities (in public debt financing) while another might give greater weight to inflation-linked securities. The object of this process is to show the effects a given action could have on debt indicators. Thus, FPD managers must include these findings as inputs in the debate on costs, risks and constraints, along with evaluating the speed of convergence, towards the benchmark debt structure.

The next step involves defining the guidelines for conducting public debt financing policy. This includes: (a) setting preliminary limits for FPD indicators; (b) defining a preliminary public security issuance profile, with indicators such as indexing factors, average issuance maturities, and their limits, and the percentage due in 12 months; and (c) presenting the definitions to the public debt planning committee.

Box 5. Analysis of future opportunities and challenges

The design of a transition strategy includes analyses of opportunities and challenges for the coming years: The figures listed below are applied in a context of declining interest rates (expected early in 2005) and the concentration of floating debt maturities in the following years. Debt managers in Brazil evaluated this table as a benign scenario with the aim of reducing its exposure to floating rates and issuing more debt at fixed rates to replace earlier securities.

Graph 2. Expected interest rates and maturity structure of public debt



Following a diagnosis of these opportunities and challenges, alternative financing strategies for public debt management as well as existing constraints and trade-offs should be evaluated.

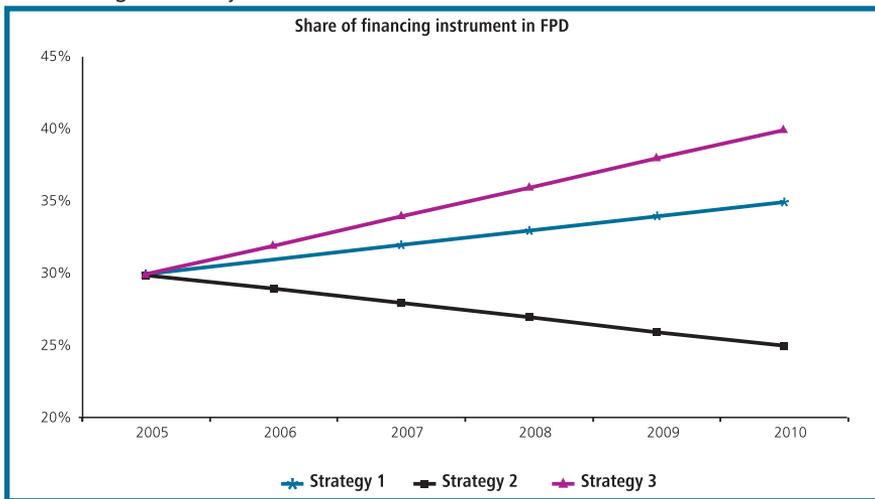
The following stage involves a cycle of debates on long-term planning for public debt including representatives of the front, middle and back offices. Alternative long-term financing strategies and projected results are presented, with an emphasis on their qualitative aspects, so as to explain the trade-offs debt managers must consider. Participants review the bottlenecks that could impede accelerated changes to the public debt profile,

ways to overcome short-term constraints and the actions that should be implemented to respond to the challenges identified.

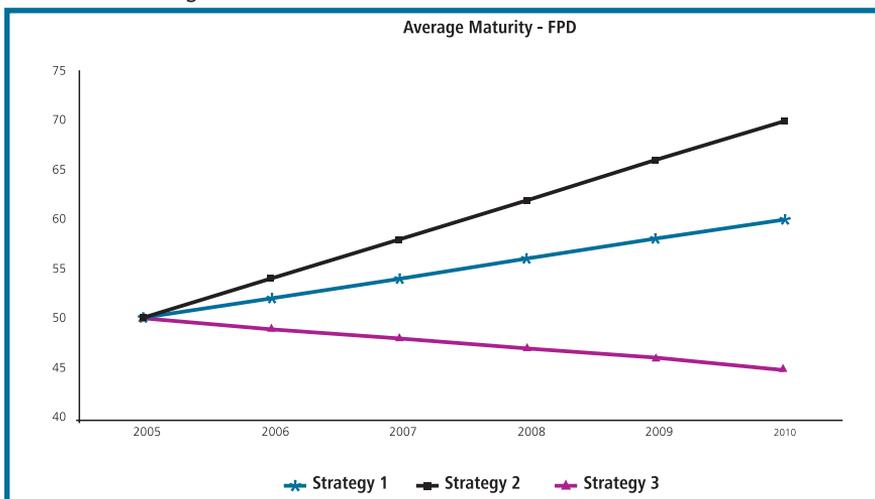
For example, the demand for certain public securities at a given point in time is often focused on short-term maturities, as is the case of fixed-rate securities in the Brazilian market. Thus, a strategy that rapidly increases the weight of these securities in the funding program may reduce the average maturity of the debt, showing the clear conflict between refinancing and market risks (strategy 2, as opposed to strategy 3 in Graph 3). However, the debate over medium- and long-term alternatives could also spark actions to overcome factors that constrain the demand for longer-term, fixed-rate securities and gradually increase fixed-rate securities, insofar as it is possible to lengthen their issuance terms (strategy 1). This point illustrates the type of debate debt managers should engage in before deciding on issues with conflicting guidelines.

Graph 3. Strategy comparisons: market versus refinancing risks

FPD Average Maturity



Share of financing instrument A in FPD



Note: Hypothetical data

Finally, some studies integrate the processes of simulating the optimal long-term debt profile and defining the optimal convergence speed within the same framework. Currently, the benchmark model works with just one optimal debt structure (when the economy has reached the steady state) without considering the nature of the transition between the two (the current situation and the steady state). As discussed earlier in this section, the transition is within an operational framework that differs from the one used in the benchmark model. Therefore, this study needs to be expanded to consider how the convergence from the current scenario to the long-term scenario (stationary state) would occur, as well as to explore what the speed should be in the change from the current FPD profile to the one desired in the long term.

In summary, the entire process of strategic planning for public debt management involves studying the optimal profile of this debt in a scenario of equilibrium in steady state, followed by simulations of transition strategies that evaluate the costs and risks of different speeds of convergence with respect to the desired profile in the long run. Together, definitions of the benchmark and transition strategy provide inputs for the National Treasury to validate FPD guidelines for short-term planning (ABP) and the tactical decisions of the monthly FPD committee.

Step 7. Tactical debt planning, execution and monitoring

After the ABP is published and the transition strategy developed, the next step involves tactical planning of the debt and its execution. This stage is included as part of the overall process, as it must be closely coordinated with the others.

Tactical planning focuses on very short term periods (one month) and addresses specific issues that could affect the strategy at a particular point in time, without compromising the commitment to the long-term strategy. This planning is discussed in detail during the monthly meetings of the Debt Management Committee (see Section 2 of this chapter) and covers the characteristics of the securities that will be offered in the next month's auctions, the Treasury's cash position, and the issuance schedule for the following period.

It should be noted that the Treasury conducts the tactical debt strategy in coordination with other institutions like the Central Bank and the Ministry of Planning, insofar as the monetary policy and budget execution could affect, or be affected by, debt management.

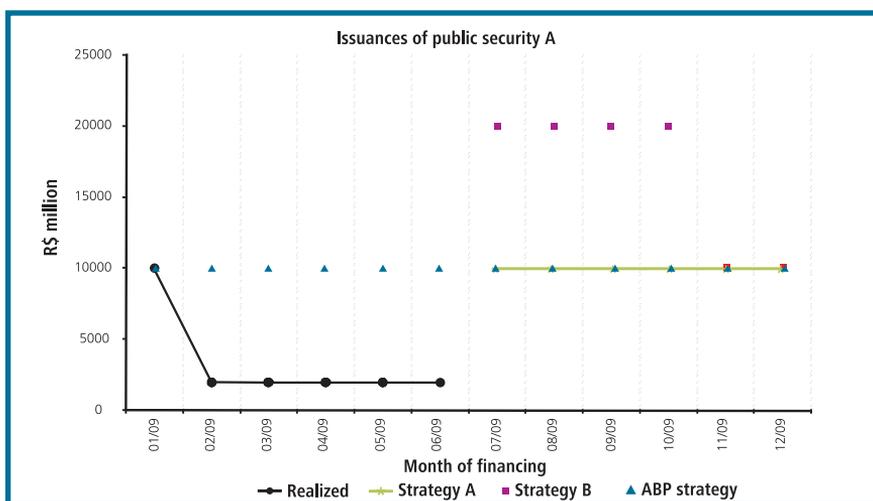
Another important element to be addressed in the strategic planning, especially as it pertains to the previous step and to identify opportunities, is the continuous monitoring of the transition strategy and assessing the risks of not meeting the ABP targets, which make up the core of a debt manager's responsibilities: Such monitoring allows debt managers to adopt corrective actions when necessary, to assure movement towards established targets. In some cases, it may not be possible to meet predefined targets; but, identifying the problem in advance could give the debt managers credibility and help them make the targets more realistic.

In Brazil, such monitoring is common: Each month, the Debt Management Committee reviews the strategy and the results achieved for the main debt indicators are analyzed in light of events in the public security market in previous months. Also, the review attempts to identify any gaps in fulfilling the indicative limits of the ABP vis-à-vis the strategies initially designed.

Also, debt indicators are projected for the end of the year and such projections evaluate whether the ABP targets will not be met. Even more important than this direct analysis is the debate over the feasibility of the strategy underlying this exercise: It serves to determine if projections are credible, having been based on a feasible plan. If they are not, this could delay the decisions needed to meet targets.

Graph 4 illustrates this point, monitoring the volume issued by type of financing instrument. Analysis of graphs such as this helps identify the main deviations between the planned issuance strategies and what actually occurs. For example, suppose that the ABP objective implies issuing R\$120 billion using public security A with R\$10 billion in each month of the year (strategy ABP), and at the end of June, one identifies the planned issuance could only be met in the first month (issuing only R\$2 billion a month from February to June) due to the low demand for this type of security. Then, for future months, a plan in the graph is designed to maintain what was initially planned in the ABP (strategy A), regardless of the frustration of the first semester. Another plan (strategy B) is to increase the volume of issuances planned to R\$ 20 billion a month from July to October, so as to secure the total issuance planned for the year (R\$ 120 billion).

Graph 4. Monitoring of National Treasury issuance plans



Note: Hypothetical data

The first plan could result in the targets (for some FPD profile indicators) not being met, if no other measure is taken to offset the lower issuance of this security. However, it could be argued that the R\$10 billion a month issued in the second semester could be feasible, in view of the last months' issuances. The results projected, based on strategy B, which presupposes a strong resumption in demand for security A, could also be debated.

Obviously, the analysis of the security market as well as macroeconomic conditions for the second semester could lead decision makers to conclude that the issuance volume being considered is not only feasible but also could work with strategy B. Such debate validates any type of projection and comparisons to the targets established for the debt profile. It also serves as the basis for choosing between strategies A and B, or devising a new strategy.

The rescheduling of planned issuances (see Graph 4), net issuances and roll-over percentages (issuances/redemptions) should be reviewed by type of financing instrument. These indicators are useful to evaluate the speed of change in the debt profile according to its risk factors with respect to the benchmark. A review of the difference between planned and observed values is also useful for maturity concentration indicators; the analysis would include the average maturities and the volume of short-term securities issued within the overall financing.

Based on the monitoring of the initial ABP strategy and possible rescheduling, and the analyses of scenarios for the following months, the next step is to analyze the projected indicators. If any are beyond the indicative limits of the ABP, measures to adjust the debt profile to the proposed target are explored.

The continuous follow-up of financing strategies is critical, especially in times of great volatility and financial market uncertainties, as in 2002 and 2008, which require actions to ensure the public security market will operate smoothly. In some cases, as in 2008, the Treasury may review some short-term targets. However, this does not change the long-term benchmark for the debt profile. Rather, monitoring allows for timely action according to market conditions, which is an important element to reduce indebtedness costs and to ensure the long-term strategy is feasible.

6 Conclusion

The process of designing a debt management strategy in Brazil was recently strengthened: Changes involved building the Treasury's analytical capacity, and improving governance mechanisms and the institutional framework. This chapter described each step Brazilian authorities followed to develop, execute and monitor a successful strategy.

For the planning process to be effective, the country's debt market needs to be reviewed. In particular, this means studying measures on both the supply and demand sides, as well as the market/intermediation infrastructure that can increase the likelihood that debt management objectives will be achieved.

On the supply side, measures include those whose implementation is usually under the debt manager's control. Some examples are the types of securities offered, the creation of benchmark issuances and the definition of an auction calendar – actions the National Treasury has successfully implemented in recent years.

On the demand side, measures relate to the investor base and its capacity (and willingness) to carry the type of debt the government wants to sell: Most of the measures aim to eliminate possible distortions that could affect the demand for government securities and are not under the debt manager's exclusive control. This process generally needs the support of institutions like the Central Bank, Securities and Exchange Commission (CVM), and Federal Revenue Secretariat, among others.

In Brazil, as in many emerging markets, demand side measures involve great challenges. After a period of significant improvements in the supply side (issuance techniques, strategy design, risk management, etc.), debt management in Brazil has switched the focus to the demand side and to market/intermediation infrastructure measures: For example, active liability management operations exist that involve buybacks and switches of medium- and long-term maturity bonds, which are generally inflation-linked, as an instrument to foster liquidity in the secondary market of these securities. Also, there are measures to encourage long-term savings so as to reduce taxes according to the duration of the investment.

Often, debt managers need to propose diversifying the investor base on the demand side. Contributing factors would include actions to open the capital market to foreign capital, such as CVM Resolution No. 2,689 of 2000, which eliminated most distinctions between institutional investors and other non-resident investors, and Law No. 11,312 of 2006, which exempts non-residents from income tax on investments in public securities.

Brazil's approach for the design and implementation of its debt strategy has been instrumental in providing a sustainable path for the improvement of the government debt profile. Robust strategic planning procedures guided authorities in launching consistent issuance policies and tackling key demand side bottlenecks for the development of domestic debt markets. As a result, the National Treasury is better able to execute its long-term strategy, with more efficient equilibrium between public debt costs and risks. Brazil's experience highlights the relevance of strengthening strategic planning functions in debt management as a way to efficiently meet debt management objectives and reinforce macroeconomic stability.

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